

IN THE CLAIMS

Please enter the below clarifying claim amendments. The listing of claims will replace all prior versions, and listings, of claims in the application.

1. (Currently amended) A method of equalizing output signals from a first and a second microphones, the method comprising the steps of:

generating a first predictable noise;

converting the first predictable noise to an audio output using a first converter having a known transfer function;

receiving the audio output at the first microphone~~[[;]]~~ and converting the audio output to a first output noise;

generating a second predictable noise;

synchronizing the first predictable noise and the second predictable noise in time by a synchronizer;

compensating the second predictable noise for the known transfer function by a compensation filter;

outputting a second output noise by the compensating filter;

determining coefficients representing a first transfer function of the first microphone based on the first and second output noises;

determining ~~a filtering function for the first microphone~~ coefficients for a first filtering function for the first microphone, based on a single selected function for the first and second microphones and the coefficients representing the first transfer function, wherein ~~the a first~~ product of the first transfer function of the first microphone and the first filtering function is ~~a the~~ single selected function, and wherein the single selected function equals a second product of a second transfer function of the second microphone and a second ~~filter~~ filtering function ~~[[of]]~~ for the second microphone; and

~~outputting~~ providing the coefficients for the first filtering function to an equalization filter for filtering an output from the first microphone.

2. (Currently amended) A method according to claim 1, wherein the single selected function is ~~the transfer function of one of the first and second microphones~~ transfer functions.

3. (Previously presented) A method according to claim 1, wherein the single selected function is a common factor.

4. (Currently amended) A method according to claim 1, ~~further comprising the step of:~~
wherein the step of providing comprises: loading the ~~filtering function~~ coefficients to the equalization filter.

5. (Currently amended) A method according to claim 1, wherein the first predictable noise is a first predictable noise sample signal, and wherein the second predictable noise is a second predictable noise sample signal, and wherein the second predictable noise sample signal has a property substantially identical to the first predictable noise sample signal.

6. (Cancelled)

7. (Previously presented) A method according to claim 1 further comprising the steps of:
providing a propagation time delay for the first predictable noise before the first microphone converting the first predictable noise sample to the first output noise; and
delaying the second output noise by same amount of time as the propagation delay time.

8. (Previously presented) A method according to claim 7, wherein the first predictable noise signal is a first predictable digital noise signal, and the second predictable noise signal is a second predictable digital noise signal.

9 -10. (Cancelled)

11. (Previously presented) A method according to claim 7, wherein the propagation delay time is an integer multiple of the first predictable noise sample.

12. (Previously presented) A method according to claim 8, wherein the step of generating the first predictable digital noise signal includes a step of utilizing a maximum length sequence generator to generate the first predictable digital noise signal.

13. (Previously presented) A method according to claim 8, wherein the step of generating the second predictable digital noise signal includes a step of utilizing a maximum length sequence generator to generate the second predictable digital noise signal that is substantially identical to the first predictable digital noise signal on a sample-by-sample basis.

14. (Previously presented) A method according to claim 8, wherein the first predictable digital noise signal or the second predictable digital noise signal comprises a white noise signal.

15. (Previously presented) A method according to claim 8, wherein the first predictable digital noise signal or the second predictable digital noise signal comprises a random noise signal.

16. (Currently amended) An apparatus for equalizing output signals from a first and a second microphones, the apparatus comprising:

- a first generator generating a first predictable noise;

- a first converter converting the first predictable noise to an audio output, the first converter having a known transfer function, wherein a module having the first microphone receiving receives the audio output[.]; and ~~a second converter converting~~ converts the audio output to a first output noise;

- a second generator generating a second predictable noise;

- a synchronizer synchronizing the first generator and the second generator[.];

- a compensation filter compensating the known first transfer function of the first converter,[.]; the compensation filter outputting a second output noise based on the compensation;

- an identification circuit for determining coefficients representing a first transfer function of the first microphone based on the first and second output noises;

- a determination circuit for determining first coefficients for a first filtering function for the first microphone based on a single selected function for the first and second microphones and the coefficients representing the first transfer function, wherein ~~the a first~~ product of the first transfer function of the first microphone and the first filtering function is ~~a the~~ single selected function, and wherein the single selected function equals a second product of a second transfer function of the second microphone and a second ~~filter~~ filtering function [[of]] for the second

microphone; and

~~an a first equalization filter for filtering an output from the module using receiving the first coefficients for a first filtering function.~~

17. (Currently amended) An apparatus according to claim 16, wherein the single selected function is ~~the transfer function of one of the first and second microphones~~ transfer functions.

18. (Previously presented) An apparatus according to claim 16, wherein the single selected function is a common factor.

19. (Currently amended) An apparatus according to claim 16, further comprising: a loader for loading the filtering function first coefficients to the first equalization filter.

20. (Previously presented) An apparatus according to claim 16, wherein the first predictable noise is a first predictable noise sample signal; and wherein the second predictable noise is a second predictable noise sample signal, and wherein the second predictable noise sample signal has a property substantially identical to the first predictable noise sample signal.

21. (Currently amended) An apparatus according to claim 20, ~~further comprising wherein~~ the module comprises an analog-to-digital converter coupled to the microphone converting an electrical analog signal of the first microphone into a digital signal.

22. (Currently amended) An apparatus according to claim 16, further comprising:
a first module for providing the first predictable noise with a propagation time delay, before the first microphone converting the first predictable noise ~~sample to the first output noise~~; and

a second module for providing [[a]] the second predictable noise with the propagation time delay.

23-24. (Cancelled)

25. (Currently amended) An apparatus according to claim ~~23~~16, wherein the ~~noise~~ first generator includes a maximum length sequence generator for generating the first predictable ~~digital noise signal~~ that is substantially identical to the second predictable ~~digital noise signal~~ on a sample-by-sample basis.

26. (Previously presented) An apparatus according to claim 16, wherein the first converter includes a loud speaker.

27. (Currently amended) An apparatus according to claim ~~23~~16, wherein the first predictable ~~digital noise signal~~ is a first maximum length sequence noise, and wherein the second predictable ~~digital noise signal~~ is a second maximum length sequence noise being substantially identical to the first maximum length sequence noise on a sample-by-sample basis.

28. (Cancelled)

29. (Previously presented) An apparatus according to claim 22, wherein the propagation delay time is an integer multiple of the first predictable noise sample.

30. (Currently amended) An apparatus according to claim ~~23~~16, wherein the first predictable ~~digital noise signal~~ or the second predictable ~~digital noise signal~~ comprises a white noise signal.

31. (Currently amended) An apparatus according to claim ~~23~~16, wherein the first predictable ~~digital noise signal~~ or the second predictable ~~digital noise signal~~ comprises a random noise signal.

32. (Currently amended) An apparatus according to claim ~~23~~16, wherein the first noise generator or the second generator includes a maximum length sequence generator ~~for generating the first predictable digital noise signal and the second predictable digital noise signal~~.

33. (Previously presented) A method for equalizing two or more microphones in a listening devices using the method according to claim 1.

34. (Currently amended) A method for equalizing two or more microphones in a hearing aid using the method according to claim 1.

35. (Currently amended) A method for equalizing two or more microphones in a headset using the method according to claim 1.

36. (Previously presented) An apparatus according to claim 16, wherein the apparatus is a listening device.

37. (Previously presented) An apparatus according to claim 16, wherein the apparatus is a hearing aid.

38. (Previously presented) An apparatus according to claim 16, wherein the apparatus is a headset.

39. (Currently amended) A listening device according to claim 36, ~~further comprising:~~ wherein a second equalization filter is provided for the second microphone a signal equalization filter provided for each of the first and the second microphones, and wherein ~~the function~~ second coefficients of the signal second equalization filter ~~is are~~ determined by ~~the apparatus according to claim 36 using the single selected function, and wherein the coefficients of each of the first and second equalization filters is are~~ loaded to the ~~signal-corresponding~~ equalization filter.

40. (Currently amended) A hearing aid according to claim 37, ~~comprising:~~ wherein a second equalization filter is provided for the second microphone a signal equalization filter provided for each of one or more microphones, and wherein ~~the function~~ second coefficients of the signal second equalization filter ~~is are~~ determined by ~~the apparatus according to claim 37 using the single selected function, and wherein the coefficients of each of the first and second equalization filters is are~~ loaded to the ~~signal-corresponding~~ equalization filter.

41. (Currently amended) A headset according to claim 38, ~~further comprising: wherein a second equalization filter is provided for the second microphone a signal equalization filter provided for each of the first and the second microphones, and wherein the function second coefficients of the signal second equalization filter is are determined by the apparatus according to claim 38~~using the single selected function, and wherein the coefficients of each of the first and second equalization filters ~~is are~~ loaded to the ~~signal-corresponding~~ equalization filter.

42. (Currently amended) A method of providing sound signals to a user through a system including two or more microphones, the method comprising steps of:

preparing a filtering function for each of one or more microphones, based on a single selected function for the two or more microphones, including, for each of the ~~two or more~~ one or more microphones, the steps of:

generating a first predictable noise;

converting the first predictable noise to an audio output using a converter having a known transfer function;

receiving the audio output at ~~a first~~ the microphone and converting the audio output to a first output noise;

generating a second predictable noise;

synchronizing the first predictable noise and the second predictable noise in time by a synchronizer;

compensating the second predictable noise for the known transfer function by a compensation filter;

outputting a second output noise by the compensating filter;

determining coefficients representing a transfer function of the ~~first~~ microphone based on the first and second output noises; ~~and~~

determining coefficients for a filtering function for the first-microphone based on the single selected function and the coefficients representing the transfer function, wherein ~~the a first~~ product of the transfer function of the microphone and the filtering function is ~~a the~~ single selected function, wherein the single selected function equals a second product of a second transfer function of ~~the other members of the two or more microphones~~ and a second ~~filter~~ filtering function ~~[[of]]~~ for the other members of the two

or more microphones; and

~~outputting providing~~ the coefficients for the filtering function to an equalization filter for filtering an output from the microphone; and

operating the system, including the step of:

for each of the two or more microphones, transferring a sound signal through the microphone and the equalization filter for the microphone.

43. (Currently amended) A sound system for two or more microphones for transmitting sound signals, comprising:

a first generator generating a first predictable noise;

a first converter converting the first predictable noise to an audio output, the first converter having a known transfer function, wherein a module having a first microphone of the two or more microphones ~~receiving~~ receives the audio output~~[[;]]~~ and a second converter ~~converting~~ converts the audio output to a first output noise;

a second generator generating a second predictable noise;

a synchronizer synchronizing the first generator and the second generator,

a compensation filter compensating the known transfer function of the first converter, the compensation filter outputting a second output noise based on the compensation;

an identification circuit for determining coefficients representing a first transfer function of the first microphone based on the first and second output noises;

a determination circuit for determining coefficients for a first filtering function for the first microphone, based on a single selected function for the two or more microphones and the coefficients representing the first transfer function, wherein the a first product of the first transfer function of the first microphone and the first filtering function is a the single selected function, and wherein the single selected function equals a second product of a second transfer function of the other members of the two or more microphones and a second filter filtering function [[of]] for the other members of the two or more microphones; and
an equalization filter for filtering an output from the module using ~~receiving~~ the coefficients for the first filtering function.

44. (Currently amended) A sound system according to claim 43, wherein the single selected function is ~~the transfer function of one of the two or more microphones~~ the first and second transfer functions.
45. (Previously presented) A sound system according to claim 43, wherein the single selected function is a common factor.
46. (Previously presented) A sound system according to claim 43, wherein the first predictable noise is a first predictable noise signal; wherein the second predictable noise is a second predictable noise signal; and wherein the second predictable noise signal has a property substantially identical to the first predictable noise signal.
47. (Previously presented) A sound system according to claim 46, wherein the first generator includes a maximum length sequence generator for generating the first predictable noise signal.
48. (Previously presented) A sound system according to claim 47, wherein the maximum length sequence generator generates the second predictable noise signal.
49. (Previously presented) An apparatus according to claim 16, wherein the identification circuit performs an Auto Regressive Moving Average (ARMA) to estimate the transfer function.
50. (Previously presented) A sound system according to claim 43, wherein the identification circuit performs an Auto Regressive Moving Average (ARMA) to estimate the transfer function.
51. (Currently amended) A method according to claim 1, wherein an output signal through ~~the first microphone and the~~ first equalization filter for the first microphone is substantially equal to an output signal through ~~the second microphone and the~~ an equalization filter for the second microphone with respect to phase or phase and magnitude.
52. (Currently amended) An apparatus according to claim 16, wherein an output signal through ~~the first microphone and the~~ first equalization filter for the first microphone is

substantially equal to an output signal through ~~the second microphone and the an~~ equalization filter for the second microphone with respect to phase or phase and magnitude.

53. (Currently amended) A method according to claim 42, wherein the two or more microphones comprises at least a first microphone and a second microphone, and wherein an output signal through ~~the first microphone and the~~ equalization filter for the first microphone is substantially equal to an output signal through ~~the second microphone and the~~ equalization filter for the second microphone with respect to phase or phase and magnitude.

54. (Currently amended) A system according to claim 43, wherein the two or more microphones comprises ~~at least a first microphone and a~~ second microphone, and wherein an output signal through ~~the first microphone and the~~ equalization filter for the first microphone is substantially equal to an output signal through ~~the second microphone and the an~~ equalization filter for the second microphone with respect to phase or phase and magnitude.